

WHAT IS CLAIMED IS

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1. An image processing method comprising the steps of:

(a) carrying out, in parallel, processes of two or more functions of an image reading function, an image
10 recording function, an image copying function and an image communicating function; and

(b) automatically storing a file of the image data processed by said step (a) independently of the processes.

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2. The image processing method as claimed in
20 claim 1, wherein said step (a) stores the file of the image data in storing means which is provided internally or externally to one image processing apparatus which has each of the functions.

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3. The image processing method as claimed in claim 2, wherein said step (a) transfers the image data processed by each of the functions on one or a plurality of buses within the image processing apparatus.

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4. The image processing method as claimed in claim 2, wherein said step (a) carries out the processes of the two or more functions in response to an internal command and/or an external command of the image processing apparatus.

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5. The image processing method as claimed in claim 4, wherein the external command is issued from one or a plurality of external apparatus coupled to the image processing apparatus via a network.

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6. The image processing method as claimed in claim 1, wherein said step (b) stores the file of the image data by adding specific information which enables identification of the file.

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7. An image processing apparatus comprising:

10 a scanner which reads a document and outputs image data;

a facsimile communication unit which transmits and receives image data via a communication line;

a plotter which records an image on a recording

15 medium based on image data; and

a control unit, responsive to a command, controlling two or more of said scanner, said facsimile communication unit and said plotter to carry out processes to process the image data in parallel,

20 said control unit automatically storing a file of the image data processed in parallel in a storage unit, independently of the processes.

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8. An image processing apparatus comprising:
image reading means for reading a document and
outputs image data;

image communicating means for communicating image
5 data via a communication line;

image recording means for recording an image on a
recording medium based on image data; and

control means, responsive to a command, controlling
two or more of said image reading means, said image
10 communicating means and said image recording means to
carry out processes to process the image data in
parallel,

said control means automatically storing a file of
the image data processed in parallel in storing means,
15 independently of the processes.

20 9. The image processing apparatus as claimed
in claim 8, wherein said storing means is provided
internally or externally to the image processing
apparatus.

10. The image processing apparatus as claimed in claim 9, further comprising:

one or a plurality of buses transferring the image data processed by said image reading means, said image communicating means and said image recording means within the image processing apparatus.

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11. The image processing apparatus as claimed in claim 9, wherein said control means controls two or more of said image reading means, said image communicating means and said image recording means to process the image data in parallel in response to an internal command and/or an external command to the image processing apparatus.

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12. The image processing apparatus as claimed in claim 11, wherein the external command is issued from one or a plurality of external terminals coupled to the image processing apparatus via a network.

13. The image processing apparatus a claimed
in claim 8, wherein said control means stores the file
of the image data in the storing means by adding
specific information which enables identification of the
5 file.

10 14. An image processing apparatus comprising:
an image data bus line transferring image data in
real-time;

image reading means for reading a document image
and outputting read image data to said image data bus
15 line in real-time;

image communicating means for receiving image data
from a communication line to output received image data
to said image data bus line, and for receiving
transmitting image data from said image data bus line in
20 real-time to transmit the transmitting image data to the
communication line;

image recording means for receiving recording image
data from said image data bus line and recording an
image on a recording medium based on the recording image
25 data;

control means for controlling one of said image
reading means, said image communicating means and said
image recording means which is unused for the processing
of the image data to process the image data in parallel,
5 in response to a command which is received during
processing of the image data to carry out at least one
of a reading operation by said image reading means, a
recording operation by said image recording means, a
transmitting operation by said image communicating means
10 and a receiving operation by said image communication
means;

a buffer temporarily storing the read image data,
the transmitting image data and the received image data
on said image data bus line;

15 a DMA transfer bus line which is used to transfer
the image data within said buffer by a DMA transfer;

image transfer means for transferring the image
data within said buffer to said DMA transfer bus line
based on a DMA transfer request which is received at a
20 preset timing; and

image storing means for storing the image data on
said DMA transfer bus line.

15. The image processing apparatus as claimed
in claim 14, wherein:

said image data bus line includes a first image
data bus line and a second image data bus line which are
5 independently usable by operations carried out in
parallel; and

said buffer includes a first buffer which
temporarily stores image data on the first image data
bus line, and a second buffer which temporarily stores
10 image data on the second image data bus line.

15 16. The image processing apparatus as claimed
in claim 14, wherein the DMA transfer request is
supplied to said image transfer means when a storage
capacity of said buffer occupied by the image data
reaches a predetermined preset value.

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17. The image processing apparatus as claimed
25 in claim 15, wherein said image transfer means carries

out a DMA transfer of the image data within the first
buffer or the second buffer depending on a preset
priority order when DMA transfer requests for the image
data within the first and second buffers are received
5 simultaneously.

10 18. The image processing apparatus as claimed
in claim 17, wherein the priority order is alternately
switched every time the DMA transfer requests for the
image data within the first and second buffers are
received simultaneously.

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19. The image processing apparatus as claimed
20 in claim 14, wherein said image storing means includes
first and second image storing means for storing the
image data on said DMA transfer bus line, and the image
data within said first image storing means is
transferred to and stored in said second image storing
25 means.

20. The image processing apparatus as claimed in claim 19, wherein said first image storing means is made up of a memory.

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21. The image processing apparatus as claimed in claim 19, wherein said second image storing means is made up of a hard disk drive.

22. An image processing system comprising:
an image processing apparatus including:
image reading means for reading a document and outputs image data;
image communicating means for communicating
image data via a communication line;
image recording means for recording an image on a recording medium based on image data; and
control means, responsive to a command, controlling two or more of said image reading means, said image communicating means and said image recording

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means to carry out processes to process the image data in parallel;

an electronic filing apparatus coupled to said image processing apparatus; and

5 a storage unit coupled to said electronic filing apparatus,

said control means automatically storing a file of the image data processed in parallel in said storage unit, independently of the processes.

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23. The image processing system as claimed in
15 claim 22, wherein said image processing apparatus and said electronic filing apparatus are coupled via a network.

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24. The image processing system as claimed in claim 23, wherein said image processing apparatus further includes network connecting means for connecting
25 said image processing apparatus to said network.

25. An image processing system comprising:

an image processing apparatus including:

an image data bus line transferring image data
in real-time;

5 image reading means for reading a document
image and outputting read image data to said image data
bus line in real-time;

image communicating means for receiving image
data from a communication line to output received image
10 data to said image data bus line, and for receiving
transmitting image data from said image data bus line in
real-time to transmit the transmitting image data to the
communication line;

image recording means for receiving recording
15 image data from said image data bus line and recording
an image on a recording medium based on the recording
image data;

control means for controlling one of said
image reading means, said image communicating means and
20 said image recording means which is unused for the
processing of the image data to process the image data
in parallel, in response to a command which is received
during processing of the image data to carry out at
least one of a reading operation by said image reading
25 means, a recording operation by said image recording

means, a transmitting operation by said image communicating means and a receiving operation by said image communication means;

5 a buffer temporarily storing the read image data, the transmitting image data and the received image data on said image data bus line;

a DMA transfer bus line which is used to transfer the image data within said buffer by a DMA transfer;

10 image transfer means for transferring the image data within said buffer to said DMA transfer bus line based on a DMA transfer request which is received at a preset timing; and

15 image storing means for storing the image data on said DMA transfer bus line;

an electronic filing apparatus coupled to said image processing apparatus; and

a storage unit coupled to said electronic filing apparatus,

20 said electronic filing apparatus automatically storing a file of the image data processed in parallel within said image processing apparatus into said storage unit, independently of the reading, recording, transmitting and receiving operations in said image
25 processing apparatus.

26. The image processing system as claimed in claim 25, wherein said image processing apparatus and said electronic filing apparatus are coupled via a network.

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27. The image processing system as claimed in claim 26, wherein said image processing apparatus further includes network connecting means for connecting said image processing apparatus to said network.

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